

AVIATION

NOVEMBER 20, 1922

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Number
21

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ERRORS IN LANDING FIELD LAYOUT
PROBLEMS OF THE INDEPENDENT AIR FORCE
BEACONS AND WIND INDICATORS FOR NIGHT FLYING

THE GARDNER, MOFFAT CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK



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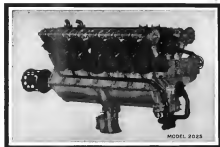
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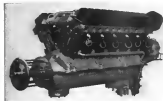
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NOVEMBER 20, 1922

AVIATION

VOL. XIII, NO. 21

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THOMAS-MORSE AIRCRAFT CORPORATION

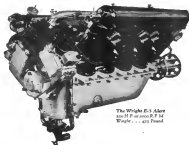
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Vol. XIII

NOVEMBER 26, 1922

No. 21

What Happened to the Wadsworth Bill?

IT has been more than four years since the Aviation, by advancing aviation of exclusive military demands, refused to be essential legislation and development. Consistent with the Treaty of Versailles these were embodied in the International Air Convention, which soon became the accepted law system law in practically every great nation except the United States.

In the United States it was immediately recognized that the act could not advance along actual commercial lines unless it is given the proper status before the law and the demand for such law, in one form or another, has been continuous. That four years should have passed and this law still lacking is a fact as disturbing as it is astounding, in view of the sentiment by the world of aviation as a vital element in national security—an element which, in turn, is hopeless of solution unless there first be created a progressive, healthy aircraft industry.

On July 15, 1922, at the month of a conference with Secretary of Commerce Hoover, participated in by representatives of aviation bodies and governmental agencies concerned, there was evolved the Wadsworth Bill (H. R. 13070), establishing a Bureau of Civil Aeronautics in the Department of Commerce and providing for the regulation and encouragement of flying. The bill passed the Senate on Feb. 15, 1923, and on introduction in the House of Representatives was referred to the Committee on Interstate and Foreign Commerce, of which Representative Samuel E. Wadsworth, of Massachusetts, is Chairman. Since then nine months elapsed, and nothing apparently has been done to advance either the Wadsworth bill or amendments to it which will make its early passage certain.

What is the reason? Is one not to be hostile, for it is a matter of record that, among others, the following representative civilian organizations and interested government agencies have unqualifiedly endorsed the principle upon which the Wadsworth bill was drafted:

Aero Club of America.
National Aeronautic Association of the U.S.A.
Aeronautical Chamber of Commerce of America.
Air Service, War Department.
Bureau of Aeronautics, Navy Department.
Department of Commerce.
Manufacturers Aircraft Association.
National Aircraft Underwriters Association.
National Advisory Committee for Aeronautics.
Air Mail, Post Office Department.
Society of Automotive Engineers.

It is notwithstanding the absence of opposition and the earnest arguments advanced by the foregoing bodies, Congress has still failed to enact the desired legislation, the reason can be found only in apathy and indifference. Nevertheless this apathy is unsatisfactory, and Aviation can not believe

that the House Committee on Interstate and Foreign Commerce is unwilling to hold hearings at once and to do all in its power to hasten the enactment of regulatory aviation law.

President Harding has summoned the Forty-Seventh Congress in special session. If the Wadsworth Bill is immediately enacted it may yet be possible to apply some sort of regulation and encouragement by next spring. If there is delay, it is perfectly certain that another flying season will pass unregulated and uncontrolled.

Lessons of the British Sulphur Meet

THE story of the British sulphur meet, which is told in this issue, affords more than one lesson to the student of aeronautical progress. For one thing it has served to reinforce the popular belief that the Germans possessed some great secret weapon, unavailable to others, whereby they could remain in the air far longer at a time without any visible expenditure of motive power. Two British pilots came near duplicating some of the best German performances, and a French pilot, Alexis Mareschal, actually beat the world's sulphur duration record established by the German Heilmann. These facts will perhaps suffice to bring some people to a proper appreciation of the factors underlying the recent development of sulphur.

Another point which the British sulphur meet has strongly brought to the fore is that in aviation, more than in any other art, it is hazardous to jump to conclusions before a fact is established beyond any doubt. As the case, two and three hour flights of Hinton's and Marston's as well as the previous duration records of Klempner's were all made on such weak sulphur monoplane, many students of soaring flight took it for granted that these performances were directly attributable to the particular type of construction used. The numerous systems of the Andean and Blumensaat types which came into being in Germany, and in England as well, indicate to what extent the belief spread that the sulphur monoplane was not only the best soaring machine—which may have been true at the time—but also that there was nothing worth while to be found outside this type of construction. Original thought and research was stifled as the result of the attitude, and it remained for an unknown form of a French sulphur plane to go back to Langley and apply his principles to glider construction. The work of M. Pappe, and of his pilot, M. M. M. M., is demonstrating the value of original research and experimentation at a time when the elements of an already orthodox type of aircraft belonged the times is, in our opinion far greater, than that which comes from having established a new world's record.

Americans may feel a justified pride in knowing that this latest step in aeronautic progress was, in part at least, made possible by the earnest research work of that great pioneer of aeronautics, Samuel Pierpont Langley.

Beacons and Wind Indicators for Night Flying

December 28, 1922

AVIATION

629

Improved Aerial Lighthouses Make Night Flying Possible



Older Photo. T. R. Navy
Aerial beacon recently erected at the Naval Air Station, San Diego, D. C., which is visible from an altitude of 5 miles above the station

In preparation for the night flying which will soon be undertaken by governmental and civilian aviation interests two types of aerial lighthouses have been developed to mark the way from New York to San Francisco. One of these devices is a beacon, already in operation at Alton, Illinois, under the supervision of the Navy Bureau of Aeronautics; another, a ground wind indicator, is being installed by the Army Air Service at Dayton, Ohio, while the Post Office Department is procuring for equipment to be installed between Chicago and Cleveland.

The development of these lights is another indication that the United States is not lagging in aviation. At Hingham, N. J., is located the plant of the American Gas Accumulator Co., the United States seat of an international corporation. Immediately after the American, the British Air Ministry requested the English seat of this corporation to work on the illuminating problem of night flying with the result that light houses were established for the London-Paris route, first at Croydon, near London, and later in Kent. The Americans now, which had specialized in marine and lighting signals, began where the British had left off and is now carrying on experiments which promise significant developments in the near future.

Assuring the Pilot on his Route

The problem of night flying involves itself mainly into a question of signals to keep the pilot on his route and so to eliminate emergency fields and terminals that he can land safely into the wind. With the present communicating apparatus of radio and stations of the compass in aerial navigation, the ground light is of primary importance. The lighting apparatus has been designed to act as a signal to aviation both by day and night. It is intended for use upon emergency and other landing grounds where no personnel is

available. The units are automatic in operation and when installed in their permanent position they will be equipped to operate without human attention at any time for periods of from six months to one year.

The lighting signal is in the form of the letter T, and very nearly approaches the style intensively carried upon its automatic landing zones. The three units are mounted in and a manner as to appear upon their upper surfaces light projected through the diaphanous fitted round the light, and these lights together with the bases are free to rotate about a vertical axis. By the employment of a suitably angled mirror the head of the T is caused to swing and maintain its position. It stands five feet high.

The light power projected upon each of the bases is 27,000 E. B. candlepower. It can be seen as a day signal at a range of about 7 miles when observed from normal flying heights. As a lighting light without definite shape, it can, at night, be seen from about 12 miles, and its shape and bearing can be clearly established from a distance of 150 to 200 miles.

The Beacon

The beacon is an interesting feature. It is worked by the action of solar radiation and is so designed as to be operative under any temperature changes. Briefly, the system employed is that a central black body is surrounded by highly polished plates; light, and therefore heat, falling upon these elements, is absorbed by the black center and reflected by the outer plates, emitting. Consequently the black center expands under a given influence to a greater extent than the polished elements; this difference in expansion is utilized to open and close a gas valve, turning the light off and on according to the pre-



Automatic ground wind indicator used at Dayton airport when illuminated for night flying. It is visible from a distance of 52 miles



Improved ground wind indicator developed by the American Gas Accumulator Co.

riding degree of light and darkness. A valve of this type brought the Gresham light into action during the last eclipse of the sun.

A field of this type is being installed at Dayton, for the Army. It has been recommended to Post Office Department, as the Chicago-Cleveland route, that the route be approved to determine suitable emergency landing fields, which should be located not more than twenty miles apart, and that one of these automatic Ground Wind Indicators be installed to mark each of these fields, so that a pilot can lay from one to the other, and in case of a forced landing, will always be able to glide to the field ahead of him or the field over which he has just passed. It will be able to determine the direction of the ground wind which he gets within three miles of the field, and by having these lights located in the same position in each field, the pilot will be able to determine his landing space from the location of the light.

The Green Air Mail Beacon

As the ground lights will not be visible for great distances, it will be necessary, just as with marine transport, to provide pilot beacons for the airways of a light range of over 20 miles. They are so equipped that they will operate for considerable without attention. They are of the revolving type, the rotation of the lenses being obtained by the movement of water sensitive diaphragms which are operated by the air pressure under pressure to the burner, or the light being extinguished by a mirror the optic cone to rotate.

A small unit of this type has now been tested by the Navy at Dayton, Ohio.

One of these lights receiving considerable light of very great candlepower should be located at convenient points along the route that it is to be flown by night at distances of forty or fifty miles apart, preferably on promontories where they will have the maximum range of visibility. A one-half mile distance then to be established by the Navy.

These lights are similar to the ones which are giving the British Air Service so much satisfaction on the London-Paris route.

Spain to Argentine Airship Line

According to articles appearing in the current press, the proposed airship line from Sevilla, Spain, to Buenos Aires, Argentina, will start operations in the not distant future. In Sevilla and Buenos Aires the installation of airships is about to be started. Three airships will be built in Sevilla—two to house three Zeppelins, and the third one to shelter a dirigible of smaller size, which will serve the route from Sevilla to the Canary Islands, carry 20 passengers, and will cost 500,000 pesetas.

Of the airships to be constructed at Sevilla, the largest will measure 300 by 90 by 50 meters, and will be the station ship. The other two will measure 300 by 50 by 50 and 150 by 50 by 50 meters, respectively. The first of these last two is to be used for repairs to ships, and the second to deliver the training ship. The capacity of the vessels in the margin is assumed, and for that reason it is expected that no serious difficulty will be encountered in loading and unloading these ships, which will be fixed in direction. On the other hand, in Buenos Aires the airships are to be used as a station and greater in volume. A revolving shed is proposed, measuring 70 by 50 by 50 meters, and another, fixed in direction. The first one will be fixed in any direction, and this will facilitate the operation of landings. An airship also is to have a diameter of 200 meters in diameter, equipped with 35 doors.

Three of the four ships to be built will be of 125,000 cu. m. capacity 280 meters long and 35 meters maximum diameter. The fourth will be of 30,000 meters capacity, 145 meters long 25 meters in diameter. The big ships will carry nine motors of 400 hp. each, mounted in independent compartments. The ship will carry 60 passengers, besides the crew, and eleven tons of mail and freight. The economical speed will be 110 kilometers an hour, and the maximum speed 132. Two of the airships will be kept in reserve, and it is not contemplated that the other three will be in use all at the same time, except in case of heavy band winds. The quarters for the pilots and officers of the ship, the cabin, the kitchen and the smoking room will be in the forward part of the airship, and the engine room in the stern. The western trip, it is calculated, will require 3 days and 16 hours, but the eastern trip 4 days and 6 hours, due to the fact that atmospheric conditions are less favorable. The cost of the line will be 2,000,000 francs, and the ground trip may be made in seven days.

Power Plant Instruments

N.A.C.A. Report No. 129

Report No. 129 of the National Advisory Committee for Aeronautics, by the Bureau of Standards, in five parts, covers the general field of power plant instruments.

Part I, gives a fairly complete discussion of all the various types of engine instruments used at the Bureau of Standards. It includes, also, a discussion of the various instruments used in detail; also several types of foreign and domestic standard instruments.

Part II, describes in detail the apparatus and methods of testing engine instruments. It includes a description of the apparatus used at the Bureau of Standards. Also, the average results of tests on many instruments of the aneroid, manometer, magnetic, and air velocity type are given and are discussed.

Part III, describes briefly the principles of thermocouple thermometers for aircraft engines, including an explanation of the physical principles involved in the functioning of the instruments and the proper use of the bulbs.

Part IV, discusses briefly the use of air and of pressure gauges on aircraft, and describes the construction of various American, British, and German gauges.

Part V, discusses the principal structural design pages now in use and gives a general comparison of the advantages and disadvantages of each type. A brief description is also given of two typical instruments.

A copy of Report No. 129 may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.



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WAR DEPARTMENT

"Who's Who in American Aeronautics"

(Copyright, 1931, by The Gardner, Whelan Co., Inc.)

The biographical sketches of men who are prominent in American Aeronautics are printed periodically in *AVIATION*. The first series have been published in a more durable form, and revised ones will be published from time to time to take care of the frequent changes in status of many of these officers, and such other changes as may occur. As errors and omissions are liable to occur in a compilation of this character, interested parties are requested to notify "Who's Who" Editor of the necessary corrections in the second copy be kept up to date.

R. Eugene Howeswell

HOWESWELL, R. EUGENE, Aeronautical Engineer, 1010 10th Ave., New York, N. Y. (1910-1911, 1912-1913, 1914-1915, 1916-1917, 1918-1919, 1920-1921, 1922-1923, 1924-1925, 1926-1927, 1928-1929, 1930-1931, 1932-1933, 1934-1935, 1936-1937, 1938-1939, 1940-1941, 1942-1943, 1944-1945, 1946-1947, 1948-1949, 1950-1951, 1952-1953, 1954-1955, 1956-1957, 1958-1959, 1960-1961, 1962-1963, 1964-1965, 1966-1967, 1968-1969, 1970-1971, 1972-1973, 1974-1975, 1976-1977, 1978-1979, 1980-1981, 1982-1983, 1984-1985, 1986-1987, 1988-1989, 1990-1991, 1992-1993, 1994-1995, 1996-1997, 1998-1999, 2000-2001, 2002-2003, 2004-2005, 2006-2007, 2008-2009, 2010-2011, 2012-2013, 2014-2015, 2016-2017, 2018-2019, 2020-2021, 2022-2023, 2024-2025, 2026-2027, 2028-2029, 2030-2031, 2032-2033, 2034-2035, 2036-2037, 2038-2039, 2040-2041, 2042-2043, 2044-2045, 2046-2047, 2048-2049, 2050-2051, 2052-2053, 2054-2055, 2056-2057, 2058-2059, 2060-2061, 2062-2063, 2064-2065, 2066-2067, 2068-2069, 2070-2071, 2072-2073, 2074-2075, 2076-2077, 2078-2079, 2080-2081, 2082-2083, 2084-2085, 2086-2087, 2088-2089, 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4092-4093, 4094-4095, 4

ARMY AND NAVY AIR NEWS

Air Service

Bombing Maneuvers as Coast Defense.—Important information relative to new aspects of coast defense problems due to the development of airplanes has been obtained from a series of past Air Service Coast Artillery training maneuvers recently held in Fort Monmouth, N. J.

The tests began on Oct. 30, with a mine patrol representing a battleship division and a tug, a cruiser division serving off Cape Henry and proceeding toward Fortress Monroe. Air Service units were ordered to intercept and destroy the approaching "hostile" craft until the latter arrived within sight of the guns. Subsequently tests were carried out as to the number of airplanes which could simultaneously with shore batteries successfully with radio without interference.

The next day on and twelve ship maneuvers and guns were fired at ranges above 4000 ft. at targets protected by smoke screens provided by airplanes.

On Nov. 6 tests of observation methods both of ship movements and fall of projectiles as aircraft level targets took place, and this was followed by tests of bomb dropping by airplanes against mobile targets, the planes to operate at heights varying from 3000 to 5000 ft.

Brig. Gen. William Mitchell, Assistant Chief of Air Service, announced after the bombing tests that previous to America's war was dependent upon the nation's air forces, backed by a good army. Air leaders, he said, had recognized most seriously as a protective military weapon, adding that the development at Hampton Roads totally eclipsed anything ever before attempted by nature from a viewpoint of accuracy in bombing and potential defense strength of aircraft.

"Five Martin bombers, loaded with full equipment, including four 360 lb. and dummy bombs in the top, landed two targets after targets from a height between 3000 ft. and 5000 ft.," General Mitchell said, "and every bomb dropped was effective, possibly with one exception. The accuracy of this fire is without parallel, especially since the targets were only 30 ft. in width, and the airplanes themselves had been under strictest orders to fly a short pass."

General Mitchell declared it was possible now to protect the Atlantic coast from Chesapeake Bay to Boston with a small number of aircraft groups.

"Give us a hint in New Jersey," he said, "and we could reach any point threatened on that part of the coast with two hours' notice of the approach of an enemy."

Construction at Albany City at Langley Field.—The reaction of the airplane C-14 is rapidly causing completion, even though several unexpected difficulties were encountered in its construction. On "weighing off" the ship, it was found to be too heavy, which necessitated the upward forward of the sea surfaces. This did not materially alter the existing design. The surfaces were moved forward by an alternate method of moving the various distribution of weight and several patches were replaced, together with a complete rearrangement of the entire construction. The new design is planned to retard the work several days from the date originally intended for completion.

The lift of the C-14 is estimated as being several hundred pounds in excess of the C-2, due to the fact that the envelope is approximately 10,000 cu. ft. in volume. The envelope is covered by the fabric in charge as being a rather poor general outline, an irregularity developed in the surface was indicated.

Test flights are being carried on, and as soon as it is deemed practicable, the ship will be flown to Aberdeen Proving Grounds on its first coast-to-coast flight.

Army Orders.—First Lieut. Francis W. Hughes, A. S., from Park Field, Washington, Tenn., to take command of Long Beach Air Intermediate Depot, Ariz.

The following officers are assigned to McCook Field, Ohio, for duty: First Lieut. William L. Boyd, Langley Field, Va.; First Lieut. Clarence E. Gussman, Mitchell Field, L. I.; First Lieut. Alexander Flanagan, Fort Riley, Kan.; Maj. Francis H. Poole, Med. Co., from Mather Field, Calif., to Langley Field, Va.

First Lieut. Roy K. Kiefer, A. S., from Bolling Field, D. C., to Fort Leach Air Intermediate Depot, Ariz.; First Lieut. Max F. Meyer, A. S., from Aberdeen Proving Ground, Md., to Akron, Ohio, as inspector of Reg. Det. A. S., with Goodhue and R. H. Baker Co.

First Lieut. William S. Howie, A. S., from Langley Field, Va., to Fairfield Air Intermediate Depot.

The following officers, from Camp Rilea, Va., to stations specified: Capt. A. S. Eberhardt, A. S., to Langley Field, Va.; First Lieut. George D. Conner, A. S., from Aberdeen, Md.; First Lieut. James C. Shively, from Park Field, Va.

First Lieut. Edmund N. Ott, A. S., from McCook Field, Ohio, to Brooks Field, Tex.

First Lieut. Robert J. Cronan, A. S., from Charlotte Field, N. C., to Kelly Field, Tex.

Maj. Arthur H. Christie, A. S., from Olaty Field, Calif., to Langley Field, Va.

First Lieut. Robert S. Worthington, A. S., from McCook Field, Ohio, to Fairfield Air Intermediate Depot, Ohio.

Capt. Clarence H. Reynolds, A. S., from Kelly Field, Tex., to Bolling Field, D. C.

Capt. Charles H. Styles, A. S., Walter Reed Hospital, Tacoma, Wash., D. C., home to await retirement.

The following officers from Ross Field, Calif., to South Field, El Centro: Capt. Theodore A. Baldwin, Capt. Oak B. Baldwin, Capt. Charles H. Ford, Capt. Robert C. Ford, Capt. Henry C. White, First Lieut. Harry G. Montgomerie, First Lieut. James T. Finley, Air Service.

First Lieut. Bruce N. Martin, A. S., from Ross Field, Calif., to Aberdeen Proving Ground, Md.

The following officers from March Field, Calif., to stations indicated: First Lieut. Charles B. Melis and Albert B. Pine, to Mitchell Field, L. I.; First Lieut. Harold B. Smith to Langley Field, Va.

Capt. Alfred C. Gussman, A. S., from Fairfield Air Intermediate Depot, Ohio, to Kelly Field, Tex.

Death Notice.—The following death notice is issued by the Adjutant General's Office:

RECORDED & INDEXED

Born in Kansas, Aug. 22, 1898, appointed from Colorado, 2nd Lt. A. S. 1 July '20; Accepted, 28 Sept., '20; 1st Lt. 3 July '20; 2nd Lt. 28 Oct. 1920; 3rd Lt. 28 Oct. 1920; 4th Lt. 28 Oct. 1920; 5th Lt. 28 Oct. 1920; 6th Lt. 28 Oct. 1920; 7th Lt. 28 Oct. 1920; 8th Lt. 28 Oct. 1920; 9th Lt. 28 Oct. 1920; 10th Lt. 28 Oct. 1920; 11th Lt. 28 Oct. 1920; 12th Lt. 28 Oct. 1920; 13th Lt. 28 Oct. 1920; 14th Lt. 28 Oct. 1920; 15th Lt. 28 Oct. 1920; 16th Lt. 28 Oct. 1920; 17th Lt. 28 Oct. 1920; 18th Lt. 28 Oct. 1920; 19th Lt. 28 Oct. 1920; 20th Lt. 28 Oct. 1920; 21st Lt. 28 Oct. 1920; 22nd Lt. 28 Oct. 1920; 23rd Lt. 28 Oct. 1920; 24th Lt. 28 Oct. 1920; 25th Lt. 28 Oct. 1920; 26th Lt. 28 Oct. 1920; 27th Lt. 28 Oct. 1920; 28th Lt. 28 Oct. 1920; 29th Lt. 28 Oct. 1920; 30th Lt. 28 Oct. 1920; 31st Lt. 28 Oct. 1920; 32nd Lt. 28 Oct. 1920; 33rd Lt. 28 Oct. 1920; 34th Lt. 28 Oct. 1920; 35th Lt. 28 Oct. 1920; 36th Lt. 28 Oct. 1920; 37th Lt. 28 Oct. 1920; 38th Lt. 28 Oct. 1920; 39th Lt. 28 Oct. 1920; 40th Lt. 28 Oct. 1920; 41st Lt. 28 Oct. 1920; 42nd Lt. 28 Oct. 1920; 43rd Lt. 28 Oct. 1920; 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Safety Code Committee Meets

The national committee on the Aeronautical Safety Code met at the Bureau of Standards for the purpose of discussing the tentative draft of the code which has been in course of preparation for the past year.

It is desired to formulate a code which will be recognized a standard throughout the country and which will embody the best modern practice, with provision for future improvements in the art. When completed it will serve as a source of information for agencies undertaking the establishment of air services and for the manufacturers of aircraft. The code will establish safe standards of practice for the design, construction, and test of aircraft structures, engines, and instruments, and will contain suitable provisions with regard to landing gear, landing fields, signals, and the qualifications for aviators. It will serve as a guide for legislation, and will help governing bodies to keep their laws in line with the latest scientific developments, and to give the public adequate protection without unduly hampering the industry.

The officers of the Committee are: H. M. Crane, Society of Automotive Engineers, Chairman; Fred French S. Jones, National Advisory Council for Aeronautics, Vice-Chairman; Dr. M. G. Lloyd, Bureau of Standards, Secretary; and Arthur Hahnel, Bureau of Standards, Assistant Secretary.

The organizations represented on the Committee are: Aero Club of America, American Inst. of Electrical Engineers, American Society of Mechanical Engineers, American Society for Testing Materials, American Society of Safety Engineers, Aeronautical Administrative Association, National Aeronautic Federation, National Aeronautic Association, National Aeronautic Association, National Safety Council, Rubber Association of America, Underwriters Laboratories, U. S. Coast Guard, Forest Service, Navy Department, War Department, Weather Bureau, and Post Office Department.

F.A.I. Meeting at Rome

The International Aeronautic Federation (F.A.I.) held its annual meeting at Rome, Italy, Oct. 1-2. While an official information is on hand regarding its labors, our Italian and French correspondents have announced its most important decisions.

First, the readmission of Germany to the F.A.I., which had been championed by several countries, was voted down and Germany becomes a member of the League of Nations, which is undoubtedly the ruling applied in the case of Austria, Hungary and Belgium. Austria of Hungary, however, as admitted in the L. of N., can be readmitted in the F.A.I. upon their request. Austria already availed herself of this privilege. However, it was decided at Rome, that while Germany must not join the F.A.I. as a member, the admission of Germany as an observer to meet under F.A.I. rules would be optional with the national federations holding such events.

The second important decision of the Rome convention concerns the maximum speed record. In view of the high speed reached in recent trials, which made the timing of such performances growingly difficult, it was decided that for the maximum speed record would be based on a 3 kilometer course.

Flying Regulations Abroad

All persons in Great Britain applying for licenses as pilots of aeroplanes or for a permit to fly are now required to undergo a physical and mental examination, conducted by a special board appointed by the British Air Ministry. Applicants for Class A license (for private pilots) are required to pass an examination in the following subjects: Elementary rules as to lights and signals, rules of the air and rules of air traffic as used in the vicinity of aerodromes, and a practical knowledge of international air legislation. Applicants for Class B license (for pilots of passengers or goods flying aeroplanes) must pass the same examination as for Class A license with the following additions: Map reading, use of compass, knowledge of position and elementary meteorology, and practical knowledge of the special conditions of air traffic.

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